

THE MUSIC CURE

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ALMOST everyone of us echoes the sentiment expressed in that classic ditty, "Gee! but I like music with my meals!" although it might be difficult to say exactly why. We may believe it is for the same reason that we accept as true the old adage that "a dinner well discussed is half digested"—which states a fact; but leaves the explanation as pellucid and translucent as mud.

But now—because thirteen-year-old Emmanuel Favre, an Italian boy, injured his skull—our knowledge of the reason we like music with our meals, and at divers other times, is greatly enhanced. This little chap sustained a severe wound, resulting from a glancing blow of an ax wielded trenchantly on behalf of the full woodbox. A section of bone, approximately three inches in length and half an inch in width, was removed from his skull, and when the wound healed, the bone, of course, did not fully cover the exposed brain.

The eminent physiologist, Professor M. L. Patrici of the University of Turin, became interested in Emmanuel, —an intelligent little fellow, and in every respect a normal, healthy boy. One result of this interest was the construction of a plethysmograph,—a cylinder of glass, filled with water, and connected with a registering apparatus. Into this cylinder the boy's arm was thrust, and firmly secured at the upper end by snug-fitting rubber rings. This was to determine the pulse volume.

For registering the pulse in the brain, and determining the blood pressure in that organ, Dr. Patrici devised a rubber cap with an electrical connection capable of showing the slightest modification in its volume. This instrument traced the rise and fall of each pulsebeat on a revolving cylinder of carbon paper, as with the ergograph tracings used by Kraepelin in his alcohol experiments.

Emmanuel Favre's average pulse line, as well as the normal pulse and respiration rate, was determined. Then the music of the world's greatest artists was played on the most perfect phonograph the doctors could obtain, and the effect of various kinds of music upon the respiration, pulse, and pulse volume was carefully noted.

AS a result of these interesting experiments Professor Patrici proved conclusively that gay, inspiring, brilliant music invariably caused an increase in the rate of respiration and pulse, and in the volume of blood sent through the arteries by each heartbeat; while a perceptible decrease in the respiration and pulse, and a diminution in the amount of blood carried through the circulation, followed as a result of playing depressing or melancholy tunes in sad and plaintive minor keys.

Also the boy's pulse was accelerated by singing or playing airs at a slow tempo, and then increasing the tempo.

The pulse was frequently quickened or slackened to accommodate changes in the rhythm of the harmonies. In fact, bright music—and, curiously enough, discords—favored the circulation and respiration; while intense sounds shocked the nervous system, producing a distressing jump in the volume of the pulse, and also contractions in the muscles.

Now, physiology teaches that a good, firm pulse and a tendency to breathe deeply are

almost indispensable to perfect health and well being; also that as we deviate from them we influence the digestion unfavorably, and all other processes of nutrition and metabolism. So Patrici and his associates proved by instruments of precision—instruments that have no "ax to grind," either one way or the other—that music influences the emotions for both good and ill; and through the emotions, the nervous system; and through the nervous system, the physical organism.

Attacking the same problem from another angle, Professor Elmer Gates and other physiologists have shown that every emotion of a disagreeable or distressing nature generates a poison in the blood and cell tissue, and that these poisons powerfully affect the health. For instance, the bite of an angry man is almost as dangerous as the bite of a mad dog, and so active and so violent is this poison generated by anger that babies have died in convulsions shortly after being nursed by mothers who were violently angry, or greatly wrought up. Sorrow, hate, fear, or rage interfere with the respiration, heart action, digestion, and assimilation. Joy, hope, pleasure, and laughter increase the flow of gastric juices, and favor good health.

One of the methods employed to induce various psychic states was the use of music. Science has shown (and this is now generally admitted) that music exerts a powerful influence through its effects upon the mind and

nervous system and, by their reaction, upon physical processes. So modern scientists are now employing it to restore harmony to a nervous or physical organism that has been jarred out of tune by the stress and strain of some emotional drain, or other nerve-wearing or soul-tiring experiences.

And this has led to the brilliant discovery by two French savants, Professor Marcelli and Dr. Boudet, working independently of each other, that music acts as a species of "vibrative medicine"; in other words, that sound waves stimulate the brain cells, just as a mechanical vibrator stimulates the body cells. While they admit that music's greatest influence is psychical,—that is, emotional,—they contend that there is a distinct and definite physical result of vibration, which helps or emphasizes its mental effects.

IT seems likely that there may be something in their theories that the sonorous fluid penetrates structures, and puts their molecules into vibration as might electricity, heat, or other physical forces; for it is well known that the diapason of an organ will cause a whole church to tremble. Also a fragile glass may be shattered by the powerful voice of a singer, as surely as a metallic rod might be melted by lightning. In fact, the degree or extent of music-caused vibration was estimated in one of the pillars of the cathedral at Rheims by French scientists, and it was definitely determined that the sound of a trumpet, blown from a particular area in the middle of the nave, caused the maximum degree of vibration in the pillar. If the waves of music could produce these effects in stone and glass, what might they not do to an aggregation of more or less frazzled nerves?

Another fact that seems to bear out this vibration theory is that deaf persons are often affected by sound, which they have no means of hearing. They sometimes refer to this as a "fluttering" sensation in the pit of the stomach, of an agreeable or disagreeable nature, depending upon the character of the music—which may help to prove that one may take many worse things than good music with one's meals.

We know how a song, struck up by a boatman, will put heart and vim into a crew of rowers, and the sailors' chantey is all but indispensable to the seaman-like setting of sail or weighing of the anchor. And young girls, who might consider it a hardship to be compelled to walk a mile on an errand, will dance fifteen miles without a murmur—if the music is good.

Even muscular fatigue or exhaustion can be relieved by hearing lively, inspiring airs. This has been demonstrated by tests with instruments used for measuring endurance and muscular resistance to fatigue. The reverse is true of sad, despairing music, which acts as a depressant—further to reduce muscular vigor and activity.

Furthermore, it is curious, and corroborative of the theory, to note the influence of music—or perhaps, more correctly, of vibrations—upon animals. Cavalry horses become restive and excited when they hear martial music, whereas they remain quite indifferent to a concert number. And dogs are keenly sensitive to changes in pitch—joining in with a prolonged and heartbreaking yowl when certain tones—tones that seem to have the effect of tinging

